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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,239	01/31/2006	Cheng Hu	N2010006	2657

720 7590 03/26/2007

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EXAMINER	
CHRISTENSEN, RYAN S	
ART UNIT	**PAPER NUMBER**
2856	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/528,239	HU ET AL.	
	Examiner	Art Unit	
	Ryan Christensen	2856	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11,12,16-22, 25* is/are rejected.

7)☒ Claim(s) *10,13-15,23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/10/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-5, 8, 9, 11, 16, 17, 21, 22, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Publication 03/012387 (Pride).

4. With respect to claim 1, Pride discloses a method for detecting a leak by providing a sensor configured to measure a concentration of gas (page 3), measuring a plurality of gas concentrations (page 3), determining a local gas concentration profile based on the measured concentrations (page 3) moving the sensor to a new location depending on the local profile determination (page 3). The method disclosed in Pride does not continue indefinitely, therefore there are stop conditions such as identifying the leak.

5. Pride does not explicitly disclose an array of sensors. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to provide a second sensor, thus presenting an array of sensors, in order to get an averaged or representative gas concentration reading.

6. With respect to claims 2, 3, and 8, Pride discloses finding a suspect direction and moving that direction, the suspect direction would have a higher concentration of the gas of interest (page 3).

7. With respect to claim 4, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Pride by including a computer algorithm to determine the "suspect direction" because the courts have found that automating a manual step not to be inventive (See MPEP 2144.04).

8. With respect to claims 5 and 16, the manner of determining the "suspect direction" from one reference point to another is considered to be calculating the steepest gas concentration gradient.

9. With respect to claim 9, Pride discloses determining a minimum threshold before scanning for the source of the leak (page 4).

10. With respect to claim 11, the plurality of sensors, as applied against claim 1, would read two nearly equal high concentrations as the source of the leak.

11. With respect to claim 17, Pride does not disclose an actuator for moving the sensor array towards the highest concentration. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the

senor by providing an automatic actuating means because the courts have held automating a manual activity not to be an invention step (See MPEP 2144.04).

12. With respect to claims 21 and 22, Pride does not explicitly disclose calibrated semiconductors sensors containing MOS capacitors as the gas sensors for leak detection. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Pride by using explicitly calibrated semiconductors sensors containing MOS capacitors, because these are known in the art for detecting gases and the court have held replacing a part with a known equivalent for the same purpose not to be inventive (MPEP 2144.06).

13. With respect to claim 25, Pride discloses a threshold, and the measured values are compared against this threshold (page 4).

14. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Publication 03/012387 (Pride) in view of U.S. Patent 5,2144,12 (Gavlak et al.).

15. With respect to claims 6, 7, 19 and 20, Pride discloses the use of a threshold but does not explicitly disclose the use of a predetermined threshold for a stop condition in the leak detection process. Gavlak et al. disclose the use of a predetermined threshold to actuate an alarm indicated the source of a leak. It would have been obvious to one of ordinary skill in the art at the time of then invention to modify the system disclosed by the combination as applied to claim 1 by including a predetermined threshold in order to determine the location of a

leak and to stop because this would enable one of skill in the art to quickly determine the proximity of the leak.

16. With respect to claims 19 and 20, Pride does not explicitly disclose the use of a microprocessor for determining a gas concentration or gradient in looking for a leak. However, Gavlak et al. disclose a method for locating a leak, where the leak sensor comprises a handheld device consisting of a microprocessor. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by Pride by including a microprocessor because microprocessors are well known in the art for processing and storing data relating to measurements.

17. Claims 12 and 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Publication 03/012387 (Pride) in view of U.S. Patent 6,157,033 (Chudnovsky).

18. The combination as applied to claims 1 and 17 do not explicitly disclose displaying the measured concentrations. However, Chudnovsky discloses a similar device for pinpointing the location of a leak where the device includes a display (7, Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system disclosed by the combination as applied to claim 1, by including a display, as disclosed by Chudnovsky, in order to provide an operator with instant and accurate feedback.

Pertinent Prior Art

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

20. U.S. Patent 3,786,675 (Delatorre et al.) discloses a hand held gas sensor for detecting leaks.

Allowable Subject Matter

21. Claims 10, 13-15, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Christensen whose telephone number is 571-272-2683. The examiner can normally be reached on Monday - Friday, 8am - 5pm.

23. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

24. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RC

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